

BASKET GRASS

Schoenoplectus pungens (M. Vahl) Palla

Plant Symbol = SCPU10

Contributed by: USDA NRCS National Plant Data Center & Idaho Plant Materials Center, and the Skokomish Tribe



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Alternative Names

Known in most floras as *Scirpus pungens*. There are three known varieties occurring in the U.S.: *Schoenoplectus pungens* (Vahl) Palla var. *longispicatus* (Britt.) S.G. Sm.; *Schoenoplectus pungens* (Vahl) Palla var. *badius* (J.& K. Presl) S.G. Sm.; and *Schoenoplectus pungens* (Vahl) Palla var. *pungens*. This plant has many common names: beach grass, sweet grass, American three-square, common threesquare, bulrush, three-cornered "grass", three-square, and tule. This plant is also known in some floras as follows: *Schoenoplectus americanus* (Persoon) Volkart ex Schinz & R. Keller var. *monophylla*, *Schoenoplectus olneyi* Gray, *Schoenoplectus monophyllus* Presl., or *Scirpus*

americanus Pers. var. *monophyllus* (J.& K. Presl) T. Koyama.

Uses

Ethnobotanic: The soft, spongy stems of basket grass were traditionally used and are still used for basketweaving; the triangular stems are commonly used for the bottom and 'ribs' of the round, wrapped, and twined "grass" baskets made by first people of the west coast of Canada and Washington. Tribes using basket grass include the following; Nitinaht, Tsimshian, Kwakwaka'wakw, Swinomish (Skagit River delta area); Quinalt, Quileute, Hoh, Makah (all coastal); Suquamish (Puget Sound), S'kallam (Strait of Georgia and Hood Canal area); Lummi (Bellingham area); Nuu-chah-nuulth (Vancouver Island); Nlak'pamax (Thompson tribes); Tlinget and Haida (British Columbia), Twana (Skokomish), Chehalis, the coast Salish (Susquamish), possibly the Duwamish, Nisqually, and the Puyallup (Ryan pers. comm. 1999; Dublanica pers. comm. 1999; Storm pers. comm. 1999; Kunlein and Turner 1991). According to Teresa Ryan (1999), "Most of the Coast Salish used basket grass. My grandmother said that she heard stories about canoes coming to (Coastal Salish areas) to harvest basket grass. We are Tsimshian, from the Northcoast."

Basket grass is apparently highly specialized in habitat. It occurs along the muddy shores and estuarine marshes of the Cheewhat River, the east coast of Vancouver Island, and the northwestern shore of Nitinak Lake in Canada (Kunlein and Turner 1991). In Washington, basket grass occurs in a large estuarine wetland in Bowerman Basin in Grays Harbor, Skagit Delta, Stilliguamish River, Port Susan area in northern Puget Sound, Willapa Bay, and the lower Columbia River (Dublanica pers comm. 1999). According to Teresa Ryan (1999) there are two basket grass locations left in Washington that are "harvestable:" Bowerman Basin and the Skagit River. Access has become an issue at Bowerman Basin due to constraints from the U.S. Fish and Wildlife Service, who manage the area as a wildlife refuge. The Skagit area populations have been threatened by *Spartina* species. Native people are concerned about the decline of basket grass and continued access to remaining populations.

The stems are harvested in August. When pulled, the stems simply break off at the base, making a sort of popping sound. Cutting of the materials should be

strongly discouraged. The floral industry has been harvesting basket grass at Bowerman Basin through cutting the materials aboveground; areas have been observed in fairly large circular swaths leaving a stem of upwards of twelve inches above ground. After collecting stems, they are carefully bundled so that they will not bend, then carried home and laid out to dry. Once dried, they are sorted according to length and bundled for storage.

The pithy, cylindrical stalks were used to weave matting, as well as for bedding and roofing material. As thatching material, basket grass was spread out in bundles, tied together, then secured in place with poles.

Various indigenous peoples of Canada ate the fleshy rootstocks and rhizomes (Kunlein and Turner 1991). The Kwakiutl used the stalks and oil on a child's head to make the hair grow long and thick (Moerman 1986).

Conservation: Basket grass or common threesquare is especially good for stabilizing or restoring disturbed or degraded areas, for erosion and slope control, and for wildlife food and cover. Where it occurs, it is widely distributed in wet ground.

Wildlife: The seeds, being less hairy and larger than cattail, are the choice food for wetland birds: baldpate, bufflehead, mallard, pintail, shoveler, blue-winged teal, cinnamon teal, greater scaup, lesser scaup, avocet, marbled godwit, clapper rail, Virginia rail, sora rail, long-billed dowager, and tricolored blackbird (Martin et al. 1951). The stems provide nesting habitat for blackbirds and marsh wrens. Snow geese are known to utilize *Schoenoplectus pungens* on the Skagit Delta and Bowerman Basin on their migratory flights (Ewing 1982).

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description

General: Sedge Family (Cyperaceae). This herbaceous, rhizomatous perennial has upright, triangular, and rarely concave stems. The stems are erect to strongly arched and 1.5-10 dm in height and 2-6 mm wide in the middle. The narrow (2-4 mm) wide, grasslike, basal leaves are all in the lower third of the stem. Leaves are flat to slightly rounded near the base, and become more cylindric toward the tip. The flowers are lateral clusters of 1-7 sessile

spikelets subtended by an involucre bract that appears to be a continuation of the stem. The scales are yellowish to reddish brown. Fruits are small, brown, lenticular achenes. The systematics on this species or subspecies are very much in dispute in the Pacific Northwest (Galen Smith pers. comm. 1999).

Distribution

For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Establishment

Adaptation: Basket grass (*Schoenoplectus pungens*) occurs in playas, salt marshes, freshwater marshes, ponds, streams, reservoirs, and lake fringes below 2,000 m elevation. It is usually found in standing water about 10-15 cm deep, and will tolerate alkaline and saline conditions as well as freshwater. Basket grass can survive seasonal drought, when the water table is more than 1 m below the surface. It grows in fine silty clay loam to sandy loam soil.

In its native habitat, basket grass grows primarily in estuarine wetlands. Due to the loss of estuarine wetland habitat throughout the United States, it is rarely appropriate to harvest wild plants in these areas. Wild plant collecting should be restricted to salvage sites with appropriate approvals or permits. Basket grass populations are declining due to loss of habitat and commercial use. Indian elders are quoted as saying "Today basket grass has become scarce and is hard to find" (Ryan pers. comm. 1999, Storm pers. comm. 1999, Dublanica pers. comm. 1999).

The following information on the propagation of basket grass is obtained from the Aberdeen Plant Materials Center, Chris Hoag (1999), and Keith Dublanica (1999).

Propagation from Cuttings: When wild plants are collected under very controlled and specific conditions, no more than 4 dm², 13-15 cm deep should be removed from any 1 m² area; the hole will fill in within one growing season. Care should be taken not to collect plants from weedy areas as these weeds can be relocated to the transplant site. In addition, the hole left at the collection site may fill in with undesirable species.

Planting plugs (either from the greenhouse or wild transplants) is the surest way to establish a new stand of this species. Plug spacing of 30-45 cm will fill in within one growing season. Soil should be kept saturated. Basket grass can tolerate 5-8 cm of standing water during the first growing season. Fluctuate the water levels during the establishment

period to increase the rate of spread. Water levels can be managed to both enhance expansion of the clone and to control weeds.

Basket grass can tolerate up to 30-45 cm of standing water if the water level is fluctuated during the growing season. This species can tolerate periods of drought and total inundation. This subspecies grows in the high salt marsh, and can tolerate both brackish water and diurnal tidal inundation. In non-tidal situations, water levels can be managed to either enhance or reduce spread as well as to control terrestrial weeds.

The Skokomish Tribe is using a modified clam gun to gather wild transplants from Bowerman Basin. The clam gun consists of a piece of tailpipe with a T-handle and a siphon hole drilled on the top (Dublanica pers. comm. 1999). The edges are sharpened and make a clean cut with the tube approximately 1 foot long and three inches in diameter. Three to twelve tillers are recovered per plug extraction. Transplant success was highest in borrow pits within the diked complex at the Skokomish River where *Schoenoplectus* remnants were already growing (*Ibid.*).

Propagation by Seed: Germination of this species is difficult. Seeds ripen from late July through August. Seeds are held in the seed head for a couple of months, if not disturbed by high winds, high tides, or inundation. Seeds may be collected by hand stripping them from the plant or by clipping the seed heads with a pair of hand shears. A power seed harvester may also be used.

To clean the seed, use a hammer mill to break up the large debris and knock the seeds loose from the stem. To clean seed by hand, run your thumbnail along the stem, and then twist the seeds away from the larger chaff. Cleaning can be accomplished using a seed cleaner with a No. 7 screen top screen and a 1/20 in bottom screen. Screens should be sized so desired seeds will fall through and debris and weed seeds are removed. Air velocity should be adjusted so chaff is blown away. Air flow and screen size may require adjustment to optimize the cleaning process for the given situation.

Seed germination is difficult in this species. Wide differences in germination may occur between sites and between different years. Fertilization, especially addition of nitrate, increases the number, the weight, and the germination percentages of the seed. When collecting seed heads, make sure the spikelets feel "full" and that the seeds have developed. The

germination rate may be enhanced by light scarification and wet pre-chilling the seeds in a mixture of water and sphagnum moss at 2°C for 30 days. After pre-chilling, place the seeds on the soil surface in pots or flats and provide light, moisture, and heat for germination. Press seed into soil surface very lightly, and do not cover seed. Plants will desiccate if the soil dried out, and will either fail to germinate or die as young seedlings. The greenhouse should be kept hot (32°C - 38°C). Germination should begin within a few weeks. Maintain moisture until plants are to be transplanted.

Management

Insectivores have not been a problem with basket grass. Aphids will feed on the stems, but will not kill the plant. If problems from an insect, herbivore (such as small mammals), or disease should emerge, treat as you would for any other plant species. Basket grass is tended by gathering and reducing the density between plants to stimulate shoot production. Fire was used to manage *Schoenoplectus* dominated wetlands in some areas.

Traditional resource management of basket grass includes the following: 1) shared ownership of individual patches and their output, ensuring long-term care and enhancement of plant production; 2) redistribution of plant wealth to basketweavers and elders; and 3) individual patches and landscapes were burned regularly.

Bowerman Basin, one of the two remaining traditional gathering sites of basket grass in Washington, is currently managed by the U.S. Fish and Wildlife Service as a national wildlife refuge. They are processing permit requests through tribal offices, and process a number of gatherers. Tribal members don't feel comfortable with the permit process, but recognize it's to guarantee access (Dublanica pers. comm. 1999). The USFWS are also providing Skokomish tribal representatives a permit to collect plants to transplant to the Skokomish tribal lands.

Cultivars, Improved and Selected Materials (and area of origin)

Selected Materials:

- Market Lake Selection of common threesquare (*Scirpus pungens*), Accession Number 9057648, for Land Resource Region (LRR) B East from Market Lake Wildlife Management Area, north of Roberts, Jefferson County, Idaho.
- Fort Boise Selection of common threesquare (*Scirpus pungens*), Accession Number 9057578, for Land Resource Region (LRR) B West from

Fort Boise Wildlife Management Area, west of the town of Apple Valley, Canyon County, Idaho.

- Malheur Selection of common threesquare (*Scirpus pungens*), Accession Number 9057610, for Land Resource Region (LRR) D North from Malheur National Wildlife Refuge, south of the town of Bums, Harney County, Oregon.

This species is available from most nurseries handling wetland plants. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

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